(19) World Intellectual Property Organization International Bureau



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(43) International Publication Date 29 April 2004 (29.04.2004)

PCT

(10) International Publication Number WO 2004/036617 A3

(51) International Patent Classification⁷: G01N 27/64

H01J 49/00.

(21) International Application Number:

PCT/GB2003/004464

(22) International Filing Date: 14 October 2003 (14.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0223792.3

14 October 2002 (14.10.2002) GB

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

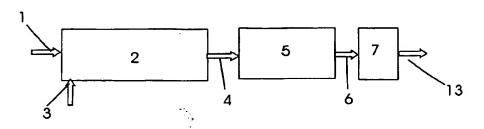
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:
 1 July 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ION COUNTER



(57) Abstract: Ions in a steady flow sample are counted by colliding the ions in a mixing chamber (2) with a numerical excess of uncharged aerosol particles, suitably glycerol, entrained in air, to transfer respective charges from the ions to charge individual aerosol particles and passing the gases through a separating chamber (5) subjected to an electric field to direct the charges aerosol particles to impinge upon an optical particle counter (7).



PCT/GB 03/04464

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01J49/10 G01N27/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 H01J G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUM	ENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EICEMAN G A: "Ion-mobility spectrometry as a fast monitor of chemical composition" TRAC, TRENDS IN ANALYTICAL CHEMISTRY, ANALYTICAL CHEMISTRY. CAMBRIDGE, GB, vol. 21, no. 4, April 2002 (2002-04), pages 259-275, XP004371244 ISSN: 0165-9936	1,3,4,7, 9,13,15, 25-27, 29-33, 37,40
Y	page 260 - page 262	2,5,6,8, 14,28, 35,36
Υ	US 4 383 171 A (FRIEDLANDER SHELDON K ET AL) 10 May 1983 (1983-05-10)	2,5,6,8, 14,28, 35,36
	claim 1 	
	<u></u>	

Further documents are listed in the continuation of box C.	Patent family members are listed in annex.
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Date of the actual completion of the international search 29 April 2004	Date of mailing of the international search report 14/05/2004
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Fax: (+31-70) 340-3016	Authorized officer Hulne, S



PCT/GB 03/04464

(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT			
alegory ° Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
EP 0 692 712 A (ION TRACK INSTR) 17 January 1996 (1996-01-17)	1,3,4,7, 9,13,15, 25-27, 29-33, 37,40		
claim 17			
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	1		
	1		



PCT/GB 03/04464

c	Patent document cited in search report		Publication date	Patent family member(s)		Publication date
	US 4383171	Α	10-05-1983	NONE		
Ī	EP 0692712	A	17-01-1996	GB	2291200 A	17-01-1996 16-01-1996
				CA DE	2153371 A1 69528418 D1	07-11-2002
				DE Ep	69528418 T2 0692712 A1	30-01-2003 17-01-1996
				ES	2183855 T3	01-04-2003
				JP JP	3045655 B2 9033486 A	29-05-2000 07-02-1997
				US	5491337 A	13-02-1996